

# United States Highway 6 Transportation Concept Report





CALTRANS DISTRICT 9
OFFICE OF SYSTEM PLANNING
MAY 2009



# **UNITED STATES HIGHWAY 6**

# TRANSPORTATION CONCEPT REPORT

**PREPARED** BY **CALTRANS DISTRICT 9** OFFICE OF SYSTEM PLANNING

MAY 2009

# **Additional Information**

For additional information regarding the Transportation Concept Report for United States Highway 6, please contact:

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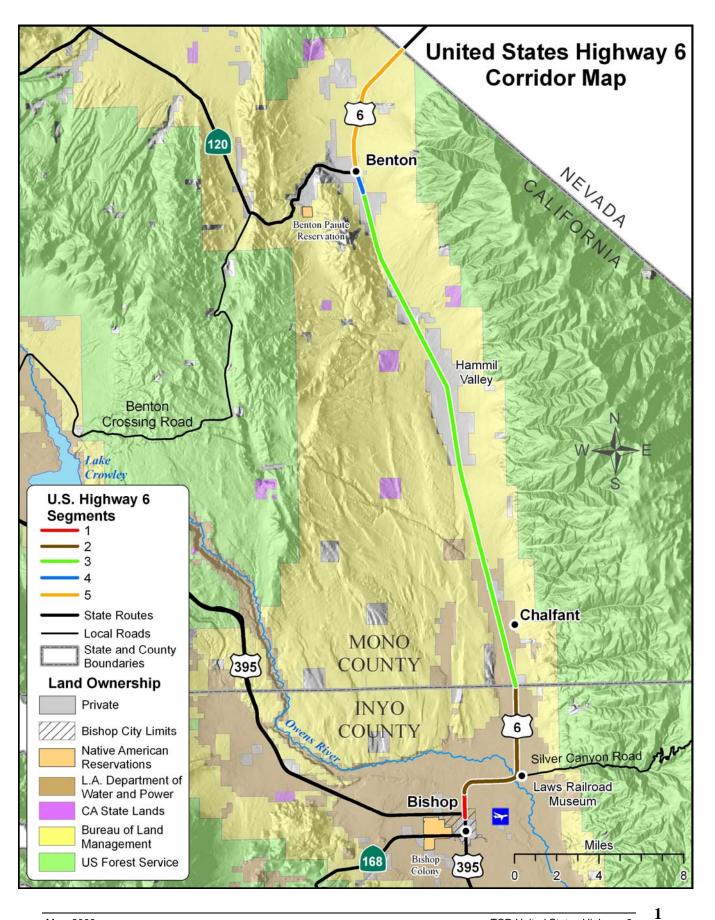
Approval for United States Highway 6 Transportation Concept Report

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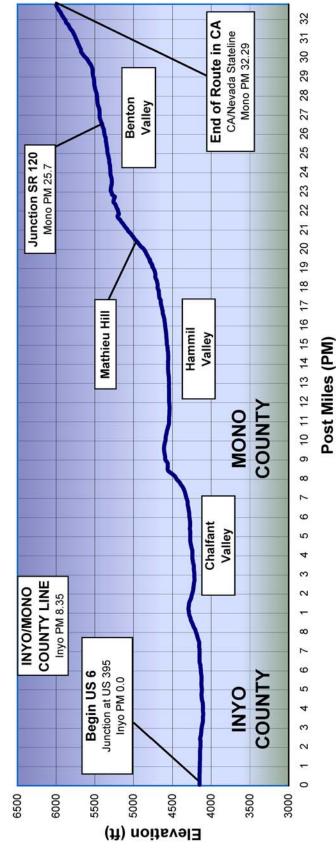
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United States Highway 6 Elevation Profile Inyo PM 0.0-8.3 and Mono 0.0-32.2



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# **United States Highway 6 Transportation Concept Report**

#### INTRODUCTION

The Transportation Concept Report (TCR) is a long range planning document that describes the current characteristics of the United States Highway 6 (US 6) transportation corridor and establishes a twenty-year planning concept. This TCR defines the California Department of Transportation's (Caltrans) goals for the development of the corridor in terms of facility type and Level of Service (LOS), while broadly identifying the improvements needed to reach those goals.

LOS calculations are based on the year 2000 Highway Capacity Manual (HCM). The 2000 HCM includes substantial changes to capacity calculations as compared to past editions. As a result, LOS calculations will differ from former reports or studies based on earlier editions of the HCM.

This TCR was prepared by the Caltrans District 9 System Planning Branch, with the cooperation of local and regional agencies, and the Nevada Department of Transportation (NDOT). All information in this TCR is subject to revision as conditions change and new information is obtained. Consequently, the nature and size of identified improvements may change during development and environmental analysis stages. Final determinations are made at the time of project planning and design.

# **CONCEPT RATIONALE**

US 6 is a rural part of an interregional road system connecting Southern California to other states. The statewide priority for rural areas is to maintain and improve the interregional transportation network. This two-lane conventional highway (2-C) is important to the local region for access to services and communities, and is vital to the shipment of goods. The Average Annual Daily Traffic (AADT) for the route is between 1,100 and 3,800 vehicles. Truck traffic ranges between 22-24% for 97% of the route. Caltrans will emphasize continued rehabilitation and operational improvements on US 6 due to its status as a high emphasis interregional route, and its value as an alternate route to US 395. Table 1 summarizes the current/concept facility and the LOS for US 6. The Ultimate Facility Concept is the goal for the route beyond the twenty year planning horizon.

	Table 1 - US 6 Facility Summary												
County	Segment	Post Miles	Current Facility	Concept Facility	Ultimate Facility	Current LOS	10-Yr LOS	20-Yr LOS	Route Concept LOS	Page #			
Inyo	1	0.0/1.12	2-C	2-C	4-C	В	В	С	С	8			
Inyo	2	1.12/8.35	2-C	2-C	4-C	А	Α	В	С	10			
Mono	3	0.0/24.7	2-C	2-C	4-C	А	Α	Α	С	12			
Mono	4	24.7/26.04	2-C	2-C	4-C	А	Α	Α	С	14			
Mono	5	26.04/32.29	2-C	2-C	4-C	А	Α	А	С	16			

For acronyms used in this table, see page 20.

#### **ROUTE HISTORY**

During the late 1920's and early 1930's, US 6 originated in Provincetown, Massachusetts and over the years was extended westward into California. In 1937, the American Association of State Highway Officials approved the final extension of US 6 to Long Beach, California. This extension made US 6 the longest route in the country, with a total of 3,652 miles. In 1965, however, the American Association of State Highway and Transportation Officials (AASHTO) approved California's request to end US 6 at the City of Bishop, California. Although this reduced its length to 3,205 miles, it remains the longest United States highway in the nation.

US 6 is also known as The Grand Army of the Republic Highway. This name was originally given to the California section of the route in 1943, to honor Civil War Union veterans. A national dedication ceremony took place at Long Beach, California, on May 3, 1953.

From the 1880's to 1960, there was a narrow gauge rail that paralleled US 6 from Mound House, Nevada to Keeler, California. Ore, agricultural goods, and passengers were transported via this rail line. In 1960, it was abandoned south to Laws (location of Laws Railroad Museum), and has since been abandoned farther south to Keeler (adjacent to Owens Dry Lake). Southern Pacific Railroad deeded most of the right-of-way (R/W) acreage to the Los Angeles Department of Water and Power (LADWP), and the Bureau of Land Management (BLM); while some land was given the State of California for highway R/W.



US 6 Northbound - Outside City of Bishop

#### **ROUTE SYNOPSIS**

The west end of US 6 is located in Inyo County at the US 395 junction in the City of Bishop, California. This route generally follows a northern path through high desert valleys east of the Sierra Nevada, crossing the Nevada state line northeast of the community of Benton. US 6 then turns east in Nevada and passes through the Great Basin, merging with US 95, US 93, and US 50. It continues east across the United States, temporarily merging with several other highways and interstates, and terminates in Provincetown, Massachusetts.

This TCR covers the 40.64 miles of US 6 located in California, and, for the purpose of this report, is addressed in five segments (See Table 2). It crosses both Inyo and Mono counties, and ends at the California/Nevada border. US 6 is a two-lane conventional highway that is functionally classified as Rural Principal Arterial. This highway serves commuter, regional, interregional, and goods movement traffic, and also provides access to commercial, low-density residential, agricultural, and day-use recreational lands.

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# **PURPOSE OF US 6**

US 6 is predominately a rural corridor with a small urban segment within the City of Bishop. This facility is in California's high emphasis Interregional Road System (IRRS), which links the state with other national economic centers. It is also part of the Strategic Highway Corridor Network (STRAHNET), which is a network of highways that provide defense access, continuity, and emergency capabilities to military bases for defense purposes.

The functional classification, description, facility type, R/W width and rights, purpose, designation, and truck networks for each segment in this TCR are summarized in Table 2.



US 6 - Two-lane Conventional Highway

			Table 2	- US 6 Facili	ty Purpose			
Segment County Post-Mile	Functional Class	Description	Present Facility	R/W Width & Rights	Route Purpose	Facility Designation	National Truck Network	See Page #
<b>1</b> Inyo 0.0 - 1.12	Rural Principal Arterial	US 395 to Dixon Lane	2-C	80-100 ft easement, prescriptive	Local, commute, regional, interregional, goods movement	CA Freeway System/ STRAHNET IRRS, SHELL	STAA Network	8
<b>2</b> Inyo 1.12 - 8.35	Rural Principal Arterial	Dixon Lane to Inyo/Mono County line	2-C	100-125 ft easement	Commute, regional, interregional, goods movement	CA Freeway System/ STRAHNET IRRS, SHELL	STAA Network	10
<b>3</b> Mono 0.0 - 24.7	Rural Principal Arterial	Inyo/Mono County line to Benton	2-C	100-400 ft easement, fee title, map application	Commute, regional, interregional, goods movement	CA Freeway System/ STRAHNET IRRS, SHELL	STAA Network	12
<b>4</b> Mono 24.7 - 26.0	Rural Principal Arterial	Community of Benton	2-C	100 ft easement, fee title	Commute, regional, interregional, goods movement	CA Freeway System/ STRAHNET IRRS, SHELL	STAA Network	14
<b>5</b> Mono 26.0 - 32.29	Rural Principal Arterial	Benton to California- Nevada border	2-C	100-400 ft easement, indenture, map application	Commute, regional, interregional, goods movement	CA Freeway System/ STRAHNET IRRS, SHELL	STAA Network	16

For acronyms used in this table, see page 20.

# **GOODS MOVEMENT & TRUCK TRAFFIC**

US 6 is included in the Subsystem of Highways for the Movement of Extra Legal Permit Loads (SHELL) system, and is a Federal Surface Transportation Assistance Act (STAA) route. The SHELL system authorizes route use by larger trucks and gives them access to facilities off the route. Permitted loads frequently use paved and unpaved shoulders at the beginning and end of US 6 in California to wait for California Highway Patrol (CHP) or private escorts.

According to the 2006 "Goods Movement Study – US 395 Corridor", approximately 1/3 of all north and south bound truck traffic using the US 395 corridor, also use US 6. With an estimated annual growth trend of 1.2% to 1.8%, daily truck volumes along the US 395 corridor are projected to be between 1,400 and 1,900 truck trips per day in 2030. A majority of trucks begin and end their routes in either southern California or Nevada. Truck traffic on US 6 has remained at approximately 23% of AADT since the early 1990's.

The 2007 Bishop Area Access & Circulation Feasibility Study (BAACS) explored improvements to state highways and Bishop area roads. It sought to increase the flow of traffic, reduce the impact of truck traffic through the City of Bishop, and improve access to the Eastern Sierra Regional Airport. As of 2009, there are no immediate plans for a truck bypass around the City of Bishop, due to monetary constraints and other possible impacts.

The California Safety Roadside Rest Area System Master Plan proposes a new rest area along US 6. This rest area would enhance the safety and quality of travel for the public, and would provide needed truck parking. A California Welcome Center, CHP office, scenic lookout, and/or electrified truck parking are all possible enhancements to the proposed rest area.

# TRANSPORTATION PLANNING, OPERATIONAL, & LAND USE ISSUES City of Bishop

Caltrans District 9 and the City of Bishop work closely together to balance Caltrans goals and policies with the needs of the city. A cooperative agreement between the two agencies seeks to make improvements on Wye Road at its intersection with US 6 (EA: 09-340408). These improvements are within the City of Bishop's two-year construction plan, and are intended to add turn lanes on Wye Road and improve the alignment of the intersection. Caltrans and the City have also agreed to seek improvements and monitor conditions at the intersection of US 395 and US 6 (see Exhibit A on page 7). In 2008, a feasibility study was conducted which suggested several possible alignments for this intersection. The study concluded that current

traffic growth and collision rates do not meet warrants for realigning the intersection.

# **Community of Chalfant**

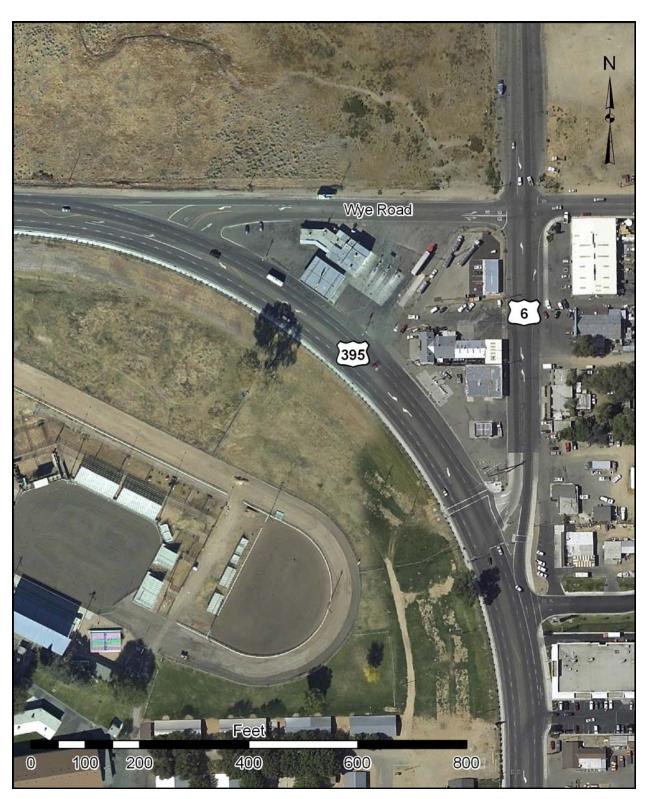
In 2008, Caltrans, Mono County, and the community of Chalfant completed the "Chalfant Community Visioning Final Report." This document sought to define Chalfant's community goals and views regarding natural resources, infrastructure, and future development. With regard to US 6, the report concluded, "Residents continue to desire safety improvements on US 6; however, based on the lack of support for increased growth, it is unlikely that future scenarios will merit significant changes to US 6."



US 6 Northbound - Approaching Chalfant

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**Exhibit A**US 6 and US 395 Intersection Alignment, 2002 Aerial Photo



The Mountain Vistas project is a 39 unit subdivision, with a commercial lot fronting US 6, that was approved by Mono County in 2006. The project was conditioned by constructing Brown Subdivision Road as a four-way intersection, with turn pockets, a bus pullout, and Chalfant Road as a right-out only. This project could change the dynamics of Chalfant. As of Spring 2009 the project has not been developed, and other options are being considered; however, map extension time has been granted.

# **Hammil Valley**

Agriculture, mostly alfalfa, dominates private land use in Hammil Valley (see Exhibit B on The Mono County General Plan strongly encourages agriculture on suitable soils that have available water sources. County zoning currently restricts the minimum size and the subdividing of lots that are suitable for agriculture. A development credit program is available for farmers in Mono County. This program encourages large continuous lots on soils. agriculturally suitable Caltrans recognizes that the highway R/W is used by slow-moving farm equipment. High winds may create blowing dust from agricultural activities, causing a visibility hazard for motorists.



US 6 Southbound - Hammil Valley

# **Community of Benton**

In 2008, Caltrans, Mono County, Benton Paiute Tribe, and the community of Benton completed the "Benton Community Visioning Project Report". This document was developed to guide planning efforts by Mono County and Caltrans in the Benton area for the next 20 years. "Developing a safe and efficient transportation network," is a guiding principle in this report. This principle focuses on US 6 safety improvements, multimodal enhancements, law enforcement, and traffic calming strategies. Non-motorized circulation options are a high priority. For example, the Edna Beaman Elementary School is adjacent to US 6 and children (walking or biking) must use the highway shoulder to access the school, since there are no curbs, gutters, or sidewalks. Mitigating the impacts of parked idling trucks along US 6, is another high priority for the community.

US 6 access management strategies would improve safety for the community of Benton. Use of shared access, frontage roads, and other circulation options would minimize access points on the highway, and should be considered during future development.

# **COMMUNITY ISSUES & PUBLIC OUTREACH**

Improvements to US 6 will be planned utilizing a collaborative, interdisciplinary approach involving all stakeholders. This approach will attempt to integrate and balance community, aesthetic, historic, and environmental values with regard to transportation safety, maintenance, and performance goals. Stake-holders in the US 6 planning area are community members and agencies, including, but not limited to: Inyo and Mono Counties, City of Bishop, Benton Paiute Tribe, communities of Benton and Chalfant, Eastern Sierra Unified School District, BLM, Department of Fish and Game, Great Basin Unified Air Pollution Control District, Lahontan Regional Water Quality Control Board, LADWP, and Eastern Sierra Transit Authority (ESTA). Caltrans continuously consults with these stakeholders regarding US 6 proposed projects.

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**Exhibit B**US 6 and Hammil Valley Agricultural Land Use, 2005 Aerial Photo



Segment 1

Length Miles 1.12

Back PM 0.0

Present Facility 2-C

Present LOS B

Concept Facility 2-C

Concept LOS C

Ultimate Facility 4-C



# **Segment Description**

This segment is located on flat terrain in Inyo County. US 6 is a two-lane conventional highway that is classified as a Rural Principal Arterial along its entire California route. The majority of the road has minor pavement distress, a pavement chip-seal is expected in the summer of 2009. Posted speed limits are from 35 to 55 mph. The route begins at the signalized intersection of US 395, adjacent to the Tri-County fairgrounds. It has 8 ft shoulders extending along the entire segment length. The Bishop Creek Bridge (#48-0023) is located at PM 0.45. Within the City of Bishop, there is a two-way-left-turn-lane between US 395 and Wye Road. Besides serving regional and interregional traffic, this segment provides access for residential and commercial traffic to US 395. Local commuters frequently use US 6 and Dixon Lane as an alternate to US 395. Left and right turn pockets exist at US 395, Wye Road, and Dixon Lane intersections (see Appendix A: Aerial Photo Bishop Wye Road, pg 18). For maintenance funding purposes, the California State Highway System uses a Maintenance Service Level (MSL), which classifies the highway according to its role and volumes. On a MSL scale of 1 to 3, this segment is a Class 2.

#### **Route Concept Improvement Recommendations**

Safety and operational improvements in this segment should be considered to address ingress and egress for streets and driveways. An Access Management Plan (AMP) that focuses on cross-traffic, bicycle, and pedestrian movements, should be developed. Curbs, gutters, and sidewalks should be provided as appropriate. New development should be required to provide road improvements along the project frontage and/or pay a transportation impact fee. "Bishop Wye Traffic Circulation Improvement Feasibility Study" suggested several new alignments for the intersection of US 6 and US 395. It concluded that when warrants are met, a reconfiguration of the intersection may be necessary. A need for truck parking has been identified, due to the current use of the shoulder, a lack of private land, and the great distances between urban centers.

#### **Programmed Projects**

A funded project, with a cooperative agreement between Caltrans District 9 and the City of Bishop, includes the addition of lanes and a realignment of Wye Road at its intersection with US 6 (EA: 09-340408). A Minor-B rumble strip project (INY PM 0.4-4.3, EA: 34205) is programmed in this segment. The Laws Rehabilitation Project (INY PM 0.0 - MNO PM 4.4, EA: 34100K) is programmed in the SHOPP with proposed bridge improvements.

H	lighway	Highway Information			
Functional Classif	ication:	Rural Principal A	rterial		Feet
National Hwy System  California Freeway  Expressway System	Yes Yes	Scenic Highway  National Truck  Network	Non-Scenic STAA Network	Average Median Width  Average Shoulder Width	0 8
STRAHNET Regionally Significant	Yes Yes	Life Line IRRS	No Yes	Average Lane Width	12

County: Inyo Route: US 6 Segment: 1 Page: 10

# **Air Quality Comments**

This route is located within the Great Basin Unified Air Pollution Control District. For National Ambient Air Quality Standards (NAAQS), this area is in attainment for ozone (8 hour) and unclassified for particulate matter (PM-10). For State of California Ambient Air Quality Standards, this area is at non-attainment for both ozone and particulate matter (PM-10).

# **Transit Service / Modal Options**

Public transit services are provided by Eastern Sierra Transit Authority (ESTA), with a fixed weekday route and a Dial-a-Ride service. Special needs transport is available with ESTA services. Charter air travel is available at the Eastern Sierra Regional Airport (adjacent to the City of Bishop), but no commercial air travel is available. Bicycles are permitted on all state highways in Inyo and Mono Counties.

#### **Land Use**

This segment is adjacent to general commercial, light industrial, and Los Angeles Department of Water and Power (LADWP) lands. LADWP lands are predominately used for livestock grazing, aqueduct water channelization, and day-use recreation.

#### **Environmental Concerns**

The Owens Tui Chub fish is on the Federal endangered list and may be located in waterways adjacent to the highway. If work takes place on or near bridges, Cliff Swallow habitat should be considered. US 6 runs through what Caltrans considers a culturally sensitive area. Any future work along the highway that goes beyond the current edge of the pavement, or disturbs any natural ground, will require cultural resource evaluation by a Caltrans archaeologist.

# **Right of Way Comments**

The highway right-of-way (R/W) varies in width from 80-100 ft, and is claimed and held by prescriptive rights and easement.

# **Traffic Analysis Comments**

US 6 functions as a urban street, rural highway, primary corridor for interregional goods movement, and as an alternate route for US 395. Access management and intersection alignments are primary issues in this segment. Fatality + Injury and Total Actual Accident Rates are above the statewide average for a similar facility. At the intersection of Wye Road and US 6 the primary collision type is broadside, and the primary collision factor is failure to yield. There is a state and locally-funded project that includes the addition of lanes and a realignment of Wye Road at its intersection with US 6. Local circulation will increase on US 6 with the continued development of residential areas and the addition of traffic controls on US 395. California Highway Patrol (CHP) may direct opposing traffic onto paved and unpaved shoulders to allow escorted permit loads to safely pass. Permitted loads park on paved and unpaved shoulders, north of Wye Road, to wait for CHP or private escorts. Winter snow and ice conditions can impact the road surface, as a result chain requirements and/or road closures do occur on US 6.

	Highway Ope	ration Factor	rs	
Traffic Forecasts	Design Hour	Volumes	Level	of Service
2007 AADT 3800	2007 DHV	360	200	07 B
2017 AADT 4540	2017 DHV	430	20	17 B
2027 AADT 5430	2027 DHV	510	202	27 C
	Calculation	n Factors		
Fatality + Injury Actual Accident Rate 1.13	Total Actual Accident Rate	1.81	% Traffic Growth 0-10 Years	1.8%
Fatality + Injury Statewide Avg Rate 0.47	Total Statewide Average Rate	0.96	% Traffic Growth 10-20 Years	1.8%
Directional Split 50/50	Terrain	Level	Percent Trucks	12.0%

County: Inyo Route: US 6 Segment: 1 Page: 11

Segment 2

Length Miles 7.23

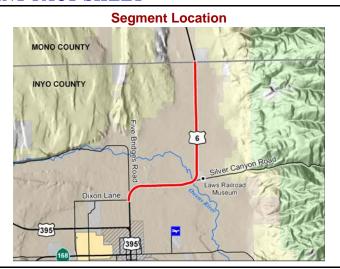
Present Facility 2-C

Present LOS A

Concept Facility 2-C

Concept LOS C

Ultimate Facility 4-C



# **Segment Description**

This segment is located on flat terrain in Inyo County. US 6 is a two-lane conventional highway that is classified as a Rural Principal Arterial along its entire California route. The majority of the road has major pavement distress, a pavement chip-seal is expected in the summer of 2009. Posted speed limits are from 55 to 65 mph. The segment begins at Dixon Lane, with 8 ft shoulders to north of Silver Canyon Road, where it changes to 4 ft shoulders to its end at the Mono County line. There are left turn and acceleration lanes at Dixon Lane, Five Bridges Road, and Silver Canyon Road. The facility crosses three (3) bridges in the segment: Owens River (#48-0024), Lower McNally Canal (#48-0038), and Upper McNally Canal (#48-0039). Besides serving regional and interregional traffic, this segment provides access to recreational lands and the Laws Railroad Museum. Truck traffic increases from 12% to 21.8% of AADT north of Dixon Lane, due to a drop in local passenger traffic from residential areas. For maintenance funding purposes, the California State Highway System uses a Maintenance Service Level (MSL), which classifies the highway according to its role and volumes. On a MSL scale of 1 to 3, this segment is a Class 2.

# **Route Concept Improvement Recommendations**

Due to STRAHNET and STAA Network classifications, the high percentage of trucks, and recreational access issues, consideration should be given to managing passing zones, improving clear zones, widening shoulders, and adding rumble strips when the roadway is scheduled for rehabilitation. Continuous year-round recreational use at the Owens River may degrade shoulders and pavement, thus consideration should be given to defining and paving access aprons.

# **Programmed Projects**

A Minor-B rumble strip project (INY PM 0.4-4.3, EA: 34205) is programmed in this segment. The Laws Rehabilitation Project (INY PM 0.0 - MNO PM 4.4, EA: 34100K) is programmed in the SHOPP with proposed bridge improvements.

н	lighway	Highway Informat	ion		
Functional Classif	ication:	•	rterial		Feet
National Hwy System  California Freeway  Expressway System	Yes Yes	Scenic Highway  National Truck  Network	Non-Scenic STAA Network	Average Median Width  Average Shoulder Width	0 6
STRAHNET Regionally Significant	Yes Yes	Life Line IRRS	No Yes	Average Lane Width	12

County: Inyo Route: US 6 Segment: 2 Page: 12

# **Air Quality Comments**

This route is located within the Great Basin Unified Air Pollution Control District. For NAAQS, this area is in attainment for ozone (8 hour) and unclassified for particulate matter (PM-10). For State of California Ambient Air Quality Standards, this area is at non-attainment for both ozone and particulate matter (PM-10).

# **Transit Service / Modal Options**

Public transit services are provided by ESTA, with a fixed weekday route. A Dial-a-Ride service is provided along US 6 from the City of Bishop to the community of Chalfant. Special needs transport is available with ESTA services. Charter air travel is available at the Eastern Sierra Regional Airport. Bicycles are permitted on all state highways in Inyo and Mono County.

#### Land Use

This segment is adjacent to light industrial, LADWP, and Bureau of Land Management (BLM) lands. Lands bordering the highway are predominately used for livestock grazing, farming, and for day-use recreation.

#### **Environmental Concerns**

The Owens Tui Chub fish is on the Federal endangered list and may be located in waterways adjacent to the highway. The Willow Flycatcher and Owens Valley Checkerbloom are on the California endangered list and may be located within the highway R/W. If work takes place on or near bridges, Cliff Swallow habitat should be considered. Bats and swallows may be present under the Owens River bridge (PM 3.72). Surveys and avoidance measures may be required prior to construction on or near this bridge. In-water or bank work may require consultation with the Lahontan Regional Water Quality Control Board, the State Department of Fish and Game, the U.S. Army Corps of Engineers, and/or LADWP. US 6 runs through what Caltrans considers a culturally sensitive area. Any future work along the highway that goes beyond the current edge of the pavement, or disturbs any natural ground, will require a cultural resource evaluation by a Caltrans archaeologist.

# **Right of Way Comments**

The highway R/W varies in width from 100-125 ft, and is held by easement. There is a consent agreement for Southern California Edison utilities within the highway right-of-way.

# **Traffic Analysis Comments**

US 6 functions as a rural highway, a primary corridor for interregional goods movement, and as an alternate route for US 395. Access management, truck traffic, and deer/vehicle collisions are the primary issues. Truck traffic is slower moving, thus increasing passing maneuvers. Fatality + Injury and Total Actual Accident Rates are below the statewide average for a similar facility. Sudden pedestrian crossings and vehicular turn movements occur due to recreational land use adjacent to the highway. CHP may direct opposing traffic onto paved and unpaved shoulders to allow escorted permit loads to safely pass. Winter snow and ice conditions can impact the road surface, as a result chain requirements and/or road closures do occur on US 6.

		Highway Ope	ration Factors		
Traffic Forecasts	s	Design Hour	Volumes	Level	of Service
<b>2007 AADT</b> 2000		2007 DHV	200	200	07 A
<b>2017 AADT</b> 2540		2017 DHV	250	201	17 A
2027 AADT 3210		2027 DHV	320	202	27 B
		Calculation	n Factors		
Fatality + Injury Actual Accident Rate 0.		Total Actual Accident Rate	0.61	% Traffic Growth 0-10 Years	2.4%
Fatality + Injury Statewide Avg Rate 0.		Total Statewide Average Rate	1.05	% Traffic Growth 10-20 Years	2.4%
Directional Split 50	0/50	Terrain	Level	Percent Trucks	21.8%

County: Inyo Route: US 6 Segment: 2 Page: 13

Segment 3

Length Miles 24.7

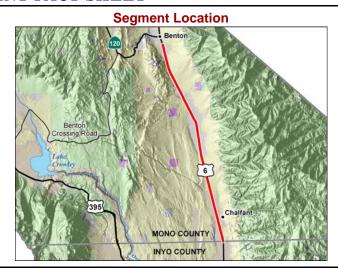
Present Facility 2-C

Present LOS A

Concept Facility 2-C

Concept LOS C

Ultimate Facility 4-C



# **Segment Description**

This segment is located on rolling terrain in Mono County. US 6 is a two-lane conventional highway that is classified as a Rural Principal Arterial along its entire California route. The majority of the facility is in good condition, with posted speed limits of 60 to 65 mph, and an average shoulder width of 4 ft. This segment crosses Chalfant, Hammil, and Benton Valleys, terminating at the community of Benton. The Spring Canyon Bridge (#47-0062) is located at north end of Hammil Valley, and a northbound chain-up area is located at the base of Mathieu Hill (PM 19.1). The percentage of truck traffic on this segment is 23%. For maintenance funding purposes, the California State Highway System uses a Maintenance Service Level (MSL), which classifies the highway according to its role and volumes. On a MSL scale of 1 to 3, this segment is a Class 2.

# **Route Concept Improvement Recommendations**

Safety and operational improvements in this segment should be considered to address ingress and egress for streets and driveways. Due to STRAHNET and STAA Network classifications, the high percentage of trucks and types of vehicle collisions, consideration should be given to managed passing zones, improved clear zones, continuous rumble strips, and widening shoulders; when the roadway is scheduled for rehabilitation. Throughout this segment, dirt roads/driveways are used for residential and agricultural access. Therefore consideration should be given to defining and paving access aprons. A future vista point location has been identified on the west side of the highway at PM 8.78. The California Safety Roadside Rest Area System Master Plan proposes a new rest area along US 6. This rest area would enhance the safety and quality of travel for the public, and would provide needed truck parking. A California Welcome Center, CHP office, scenic lookout, and/or electrified truck parking are all possible enhancements to the proposed rest area.

#### **Programmed Projects**

The Laws Rehabilitation Project (INY PM 0.0 - MNO PM 4.4, EA: 34100K) is programmed in the SHOPP with proposed bridge improvements. The Mathieu Hill Chain-up Area (EA: 09-33250; PM 19.0-19.2) is programmed as a Minor-B safety project that will improve the existing chain-up area by widening shoulders. A private development project, White Mountain Estates, has been conditioned to provide a US 6 right turn lane onto White Mountain Estates Road.

H	lighway	Highway Information			
Functional Classif	ication:	•	rterial		Feet
National Hwy System California Freeway Expressway System	Yes Yes	Scenic Highway  National Truck  Network	Non-Scenic STAA Network	Average Median Width  Average Shoulder Width	0 4
STRAHNET Regionally Significant	Yes Yes	Life Line IRRS	No Yes	Average Lane Width	12

County: Mono Route: US 6 Segment: 3 Page: 14

# **Air Quality Comments**

This route is located within the Great Basin Unified Air Pollution Control District. For NAAQS, this area is in attainment for ozone (8 hour) and unclassified for particulate matter (PM-10). For State of California Ambient Air Quality Standards, this area is at non-attainment for both ozone and particulate matter (PM-10).

# **Transit Service / Modal Options**

Public transit services are provided by ESTA, with a fixed weekday route. A Dial-a-Ride service is provided along US 6 from the City of Bishop to the community of Chalfant. Special needs transport is available with ESTA services. Commercial and charter air travel is available at the Mammoth Yosemite Airport. The Eastern Sierra Regional Airport has only charter air travel. Bicycles are permitted on all state highways in Inyo and Mono Counties.

#### Land Use

This segment is adjacent to private, LADWP, and BLM lands. Lands bordering the highway are predominately used for agricultural, low density residential, and day-use recreation.

#### **Environmental Concerns**

No known endangered species are located within this segment. If work takes place on or near bridges, cliff swallow habitat should be considered. US 6 runs through what Caltrans considers a culturally sensitive area. Any future work along the highway that goes beyond the current edge of the pavement, or disturbs any natural ground, will require a cultural resource evaluation by a Caltrans archaeologist.

# **Right of Way Comments**

The highway R/W varies in width from 100-400 ft, and is held by easement, fee title, and BLM map application.

# **Traffic Analysis Comments**

US 6 functions as a rural highway and a primary corridor for interregional goods movement, and as an alternate route for US 395. Access management, truck traffic, and slow-moving farm equipment are the primary issues in this segment. Truck traffic is slower moving, thus increasing passing maneuvers. Fatality + Injury and Total Actual Accident Rates are below the statewide average for a similar facility. The two primary collision factors are speeding and improper turn. There is a 60 mph posted speed limit through the community of Chalfant. During periods of high wind, blowing dust from agricultural activities may create a visibility hazard for motorists. CHP may direct opposing traffic onto paved and unpaved shoulders, to allow escorted permit loads to safely pass. Winter snow and ice conditions can impact the road surface, as a result chain requirements and/or road closures do occur on US 6. A Roadside Weather Information System (RWIS), on or near Mathieu Hill, would assist Maintenance and Traffic Operations in monitoring highway conditions. Mono County Local Transportation Commission has currently raised County Line Hill as a local traffic perception issue. Caltrans has investigated US 6 on County Line Hill and found no outstanding safety issues at this time, but will continue to give special attention to this area based on local concerns.

		Highway Ope	ration Factors		
Traffic Forecas	ts	Design Hour	Volumes	Level	of Service
2007 AADT 110	0	2007 DHV	140	200	07 A
2017 AADT 116	0	2017 DHV	150	20	17 A
2027 AADT 122	0	2027 DHV	160	202	27 A
		Calculation	on Factors		
Fatality + Injury Actual Accident Rate	0.34	Total Actual Accident Rate	0.97	% Traffic Growth 0-10 Years	0.5%
Fatality + Injury Statewide Avg Rate	0.57	Total Statewide Average Rate	1.16	% Traffic Growth 10-20 Years	0.5%
Directional Split	50/50	Terrain	Rolling	Percent Trucks	23.0%

County: Mono Route: US 6 Segment: 3 Page: 15

Segment 4

Length Miles 1.34

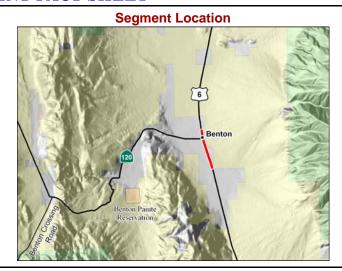
Present Facility 2-C

Present LOS A

Concept Facility 2-C

Concept LOS C

Ultimate Facility 4-C



# **Segment Description**

This segment is located on flat terrain in Mono County. US 6 is a two-lane conventional highway that is classified as a Rural Principal Arterial along its entire California route. The majority of the facility is in good condition, with a posted speed limit of 25 to 45 mph, and an average shoulder width of 6 ft. State Route 120 (SR 120) East intersects US 6 at PM 25.7. There are dedicated left and right turn lanes for traffic movements onto SR 120 and a dedicated left turn lane from SR 120 to US 6. The percentage of truck traffic in this segment is 23.5%. Edna Beaman Elementary School is adjacent to the state highway, with a posted school zone speed limit of 25 mph "When Children are Present" sign, and a striped crosswalk on US 6. For maintenance funding purposes, the California State Highway System uses a Maintenance Service Level (MSL), which classifies the highway according to its role and volumes. On a MSL scale of 1 to 3, this segment is a Class 2.

# **Route Concept Improvement Recommendations**

Safety and operational improvements in this segment should be considered to address ingress and egress for streets and driveways. An Access Management Plan (AMP) that focuses on cross-traffic, bicycle, and pedestrian movements, should be developed. Curbs, gutters, and sidewalks should be provided as appropriate. Due to STRAHNET and STAA Network classifications, the high percentage of trucks, and pedestrian use, consideration should be given to widening shoulders, managing speed zones, and improving sight distance, when the roadway is scheduled for rehabilitation. Throughout this segment, dirt roads/driveways are used for residential, public, and commercial access. Therefore, consideration should be given to widening shoulders and paving access aprons where dirt roads/driveways intersect the highway. New development should be required to provide road improvements along the project frontage and/or pay a transportation impact fee. A need for truck parking has been identified, due to the current use of the shoulder, a lack of private land, and the great distances between urban centers.

# **Programmed Projects**

There are no programmed projects in this segment.

Н	lighway	Highway Informat	ion		
Functional Classit	ication:	Rural Principal A	rterial		Feet
National Hwy System  California Freeway  Expressway System	Yes Yes	Scenic Highway  National Truck  Network	Non-Scenic STAA Network	Average Median Width  Average Shoulder Width	0 6
STRAHNET	Yes	Life Line	No	Average Lane Width	12
Regionally Significant	Yes	IRRS	Yes		

County: Mono Route: US 6 Segment: 4 Page: 16

# **Air Quality Comments**

This route is located within the Great Basin Unified Air Pollution Control District. For NAAQS, this area is in attainment for ozone (8 hour) and unclassified for particulate matter (PM-10). For State of California Ambient Air Quality Standards, this area is at non-attainment for both ozone and particulate matter (PM-10).

# **Transit Service / Modal Options**

Public transit services are provided by ESTA, with a fixed weekday route. Special needs transport is available with ESTA service, but no Dial-a-Ride services are available in this segment. Commercial and charter air travel is available at the Mammoth Yosemite Airport. Bicycles are permitted on all state highways in Inyo and Mono Counties.

#### **Land Use**

This segment is adjacent to low density residential, light commercial, BLM, and lands owned by the Benton Paiute Tribe. A California Department of Forestry Fire Station, the Benton Public Library, and the Edna Beaman Elementary School are adjacent to the highway. The Benton Paiute Reservation is adjacent to SR 120 and is approximately 2 miles east of US 6.

#### **Environmental Concerns**

No known endangered species are located within this segment. US 6 runs through what Caltrans considers a culturally sensitive area. Any future work along the highway that goes beyond the current edge of the pavement, or disturbs any natural ground, will require a cultural resource evaluation by a Caltrans archaeologist.

# **Right of Way Comments**

The highway R/W is 100 feet, and is held by easement and fee title.

# **Traffic Analysis Comments**

US 6 functions as a rural conventional highway, community main street, a primary corridor for interregional goods movement, and as an alternate route for US 395. Access management, multimodal use, and truck traffic are the primary issues in this segment. US 6 is the only path available for Edna Beaman Elementary School students to walk or bike to school. School zone signage meets current standards. There are no curbs, gutters, or sidewalks adjacent to the state highway. Fatality + Injury and Total Actual Accident Rates are below the statewide average for a similar facility. CHP may direct opposing traffic onto paved and unpaved shoulders, to allow escorted permit loads to safely pass. Winter snow and ice conditions can impact the road surface, as a result chain requirements and/or road closures do occur on US 6.

		Highway Ope	ration Factor	rs	
Traffic Foreca	sts	Design Hour	Volumes	Level	of Service
2007 AADT 10	30	2007 DHV	120	200	07 A
2017 AADT 11	10	2017 DHV	130	20	17 A
2027 AADT 12	00	2027 DHV	140	202	27 A
		Calculation	on Factors		
Fatality + Injury Actual Accident Rate	0.0	Total Actual Accident Rate	0.64	% Traffic Growth 0-10 Years	0.75%
Fatality + Injury Statewide Avg Rate	0.56	Total Statewide Average Rate	1.12	% Traffic Growth 10-20 Years	0.75%
Directional Split	50/50	Terrain	Level	Percent Trucks	23.5%

County: Mono Route: US 6 Segment: 4 Page: 17

Segment 5

Length Miles 6.25

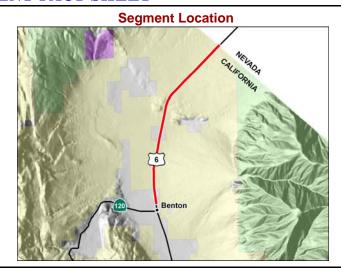
Back PM 26.04

Present Facility 2-C

Present LOS A

Concept Facility 2-C

Concept LOS C



# **Segment Description**

Ultimate Facility 4-C

This segment is located on rolling terrain in Mono County. US 6 is a two-lane conventional highway that is classified as a Rural Principal Arterial along its entire California route. The majority of the facility is in good condition, with a posted speed limit of 65 mph and an average shoulder width of 4 ft. This segment begins north of the community of Benton and ends at the California/Nevada state line. US 6 continues east across the United States, temporarily merging with several other highways and interstates, and terminating in Provincetown, Massachusetts. There is an Agricultural Inspection Station located at MNO PM 27.3. A paved pullout is located on the southbound side of US 6 just west of the Nevada border. The percentage of truck traffic in this segment is 23%. For maintenance funding purposes, the California State Highway System uses a Maintenance Service Level (MSL), which classifies the highway according to its role and volumes. On a MSL scale of 1 to 3, this segment is a Class 2.

# **Route Concept Improvement Recommendations**

Due to STRAHNET and STAA Network classifications, the high percentage of trucks, permit loads parking on shoulder, and types of vehicle collisions, consideration should be given to adding rumble strips and widening shoulders when the roadway is scheduled for rehabilitation. Throughout this segment, dirt roads/driveways are used for residential and agricultural access, thus consideration should be given to defining and paving access aprons. The California Safety Roadside Rest Area System Master Plan proposes a new rest area along US 6. This rest area would enhance the safety and quality of travel for the public and would provide needed truck parking. A California Welcome Center, CHP office, scenic lookout, and/or electrified truck parking are all possible enhancements to the proposed rest area.

# **Programmed Projects**

There are no programmed projects in this segment.

H	lighway	Highway Information			
Functional Classif	ication:	•	rterial		Feet
National Hwy System California Freeway Expressway System	Yes Yes	Scenic Highway  National Truck  Network	Non-Scenic STAA Network	Average Median Width  Average Shoulder Width	0 4
STRAHNET Regionally Significant	Yes Yes	Life Line IRRS	No Yes	Average Lane Width	12

County: Mono Route: US 6 Segment: 5 Page: 18

# **Air Quality Comments**

This route is located within the Great Basin Unified Air Pollution Control District. For NAAQS, this area is in attainment for ozone (8 hour) and unclassified for particulate matter (PM-10). For State of California Ambient Air Quality Standards, this area is at non-attainment for both ozone and particulate matter (PM-10).

# **Transit Service / Modal Options**

No services are provided by ESTA or Dial-a-Ride in this segment. Commercial and charter air travel is available at the Mammoth Yosemite Airport. Bicycles are permitted on all state highways in Inyo and Mono Counties.

#### **Land Use**

This segment is adjacent to low density residential, agricultural, BLM, and private lands owned by the Benton Paiute Tribe. The majority of land bordering the highway is used for livestock grazing, and day-use recreation. The Benton Paiute Reservation is adjacent to SR 120 and is approximately 2 miles east of US 6.

#### **Environmental Concerns**

No known endangered species are located within this segment. US 6 runs through what Caltrans considers a culturally sensitive area. Any future work along the highway that goes beyond the current edge of the pavement, or disturbs any natural ground, will require a cultural resource evaluation by a Caltrans archaeologist.

# **Right of Way Comments**

The highway R/W varies in width from 100-400 ft, and is held by easement, rail road indenture, and BLM map application.

# **Traffic Analysis Comments**

US 6 functions as a rural highway and a primary corridor for interregional goods movement, and as an alternate route for US 395. Fatality + Injury Accident Rates are less than the statewide average. For the study period, there were only single vehicle collisions within this segment. Total Actual Accident Rates are above the statewide average for a similar facility, and the primary collision factor is improper turning, resulting in rollovers. California's US 6 has no rumble strips, however Nevada's US 6 has them. CHP may direct opposing traffic onto paved and unpaved shoulders, to allow escorted permit loads to safely pass. Permitted loads park on paved and/or unpaved shoulders at the California/Nevada State line to wait for CHP or private escorts. Winter snow and ice conditions can impact the road surface, as a result chain requirements and/or road closures do occur on US 6.

Highway Operation Factors				
Traffic Forecasts Design Hour Volumes		Level of Service		
2007 AADT 940	2007 DHV	100	20	07 A
2017 AADT 1040	2017 DHV	110	<b>2017</b> A	
2027 AADT 1150	2027 DHV	120	20	27 A
Calculation Factors				
Fatality + Injury Actual Accident Rate 0.32	Total Actual Accident Rate	1.45	% Traffic Growth 0-10 Years	1.0%
Fatality + Injury 0.59 Statewide Avg Rate	Total Statewide Average Rate	1.19	% Traffic Growth 10-20 Years	1.0%
Directional Split 50/50	Terrain	Rolling	Percent Trucks	23.0%

County: Mono Route: US 6 Segment: 5 Page: 19

# **ACRONYMS**

2-C Two-Lane Conventional Highway4-C Four-Lane Conventional Highway

**AADT** Average Annual Daily Traffic

**AASHO** American Association of State Highway Officials

AMP Access Management Plan

**BAACS** Bishop Area Access & Circulation Feasibility Study

BLM Bureau of Land Management

**Caltrans** California Department of Transportation

**CHP** California Highway Patrol

**ESTA** Eastern Sierra Transit Authority **FHWA** Federal Highway Administration

**LADWP** Los Angeles Department of Water and Power

HCM Highway Capacity Manual IRRS Interregional Road System

**LOS** Level of Service

MSL Maintenance Service Level

NAAQS National Ambient Air Quality Standards

NDOT Nevada Department of Transportation

NHS National Highway System
NTN National Truck Network

PM Post Mile R/W Right-of-Way

SHELL Subsystem of Highways for the Movement of Extra Legal Permit Loads

**SHOPP** State Highway Operation and Protection Program

SR State Route

STAA Surface Transportation Assistance Act of 1982

**STRAHNET** Strategic Highway Network

TCR Transportation Concept Report

US 6 United States Highway 6
US 395 United States Highway 395

# **GLOSSARY**

#### **Annual Average Daily Traffic - AADT**

The average 24-hour volume of traffic that is calculated over a year

#### Concept Facility

Highway facility type and characteristics considered viable with or without improvement within the 20-year planning period given financial, environmental, planning, and engineering factors

#### **Concept LOS**

Highest and best Level of Service that can be achieved in the 20-year planning period based on the concept facility

# **Conventional Highway**

A highway without controlled access. Grade separations at intersections and access control may be used when justified

# **Design Hour Volume - DHV**

The 30<sup>th</sup> highest hour traffic volume in a selected year for a given segment

# **Directional Split**

The percentage of traffic in the peak direction during the peak hour

# **Functional Classification**

Guided by Federal legislation, refers to a process by which streets and highways are grouped into classes or systems according to the character of the service that is provided, i.e. Principal and Minor Arterial Roads, Collector Roads, and Local Roads

#### Interregional Road System - IRRS

Statewide network of legislatively identified interregional routes, outside urbanized areas, that provide access to, and links between, the state's rural and urban regions, economic centers, and major recreational areas

# **Level of Service - LOS**

A qualitative rating of the effectiveness of a transportation system in serving travel, A (best) through F (worst)

#### **National Highway System - NHS**

Federally-designated system of major highways in each state, including all interstate highways

# **Programmed Projects**

Capacity-enhancing, safety, and/or operational improvement projects programmed through STIP or SHOPP

#### **Route Designations**

Identifies whether or not the subject segment of a route is designated as being part of the National Highway System, Interregional Highway System, California Freeway/Expressway, Scenic Highway, National Truck Network, Strategic Highway Network, and other highways of regional significance

#### Strategic Highway Corridor Network - STRAHNET

A network of highways that provide defense access, continuity, and emergency capabilities to military bases for defense purposes

# Subsystem of Highways for the Movement of Extra Legal Permit Loads - SHELL

Authorizes larger truck loads and/or trucks to use state highways and gives them access to facilities off the highway

# **Surface Transportation Assistance Act of 1982**

The FHWA provides standards for STAA trucks. These standards designate the minimum truck size that all states must allow on highways in the National Truck Network.

# **REFERENCES & INFORMATION**

Benton Community Visioning Final Project Report, Caltrans District 9, 2008

Bishop Area Access & Circulation Feasibility Study, Caltrans District 9, 2007

Bureau of Land Management, Bishop Office <www.blm.gov/ca/st/en/fo/bishop.html> 2009

Chalfant Community Visioning Final Report, Caltrans District 9, 2008

City of Bishop General Plan, Circulation Element, 1993

City of Bishop Public Works Department <www.ca-bishop.us> 2009

Digital Highway Inventory Photography Program (DHIPP), Caltrans HQ Project Delivery, 2002

Eastern Sierra Transit Authority (ESTA) <a href="http://easternsierratransitauthority.com">http://easternsierratransitauthority.com</a> 2009

Feasibility Study Report for "Bishop Wye Traffic Circulation Improvement", Caltrans District 9, 2009

Federal Highway Administration <www.fhwa.dot.gov> 2009

Goods Movement Study for US 395 Corridor, Caltrans, 2006

Great Basin Unified Air Pollution Control District <www.gbuapcd.org> 2009

Highway Capacity Manual, 2000

Inyo County General Plan, 2001

Inyo County Planning Department <a href="http://inyoplanning.org">http://inyoplanning.org</a> 2009

Lahontan Regional Water Quality Control Board <www.swrcb.ca.gov/rwqcb6> 2009

Long-Term Socio-Economic Forecasts, Caltrans <www.dot.ca.gov/hp/tpp/offices/ote/> 2008

Los Angeles Department of Water and Power, Bishop Office

Mono County Community Development Department < www.mono.ca.gov> 2009

Mono County Regional Transportation Plan, Circulation Element, 2008

National Agriculture Imagery Program (NAIP), US Department of Agriculture, 2005

Nevada Department of Transportation < www.nevadadot.com > 2009

Post Mile Log, Caltrans District 9, 2007

Table B Collision Data, US 6, 2005–2007

Transportation System Development Plan, Caltrans District 9, 2006

Tri-Valley Community Profile, Mono County, California, 2008

US 395 Origination & Destination Study, Caltrans District 9, 2000

US 6 Route Concept Report, Caltrans District 9, 1991

# **REFERENCES & INFORMATION, Continued**

# **Environmental Sources of Information:**

Great Basin Unified Air Pollution Control District 157 Short Street Bishop, CA. 93514 (760) 872-8211

<u>Lahontan Regional Water Quality Control Board</u> 2501 Lake Tahoe Boulevard South Lake Tahoe, CA. 96150

# California Natural Diversity Database (CNDDB), 2008

On US 6, an initial assessment of known biological resources in a 2000-foot wide corridor is listed under Environmental Concerns within the segment fact sheets. This information does not represent all possible environmental constraints that may exist, such as cultural resources (historic and pre-historic), floodplain encroachment, hazardous materials, noise, and visual impacts. Any project that is being considered for programming would require environmental clearance in compliance with all Federal, State, and Local environmental laws and regulations.

# California Climate Change Law: AB 32 and SB 375

Caltrans is working through the project development process to help local agencies understand, prepare, and comply with the new California climate change laws, AB 32 and SB 375, by incorporating planning, environmental, construction, and maintenance strategies that may reduce greenhouse gas emissions, which are based upon sound and current science.